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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,136	01/05/2006	Yasushi Okubo	125493	4314

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EXAMINER	
ROSASCO, STEPHEN D	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
10/19/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,136	OKUBO ET AL.	
	Examiner	Art Unit	
	Stephen Rosasco	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

In response to the Amendment of 7/6/09, wherein the independent claims were amended to include the limitation "wherein the resist film in the supported region of the mask blank is not exposed to light, so as to remove the resist film when the resist film is developed.", the examiner withdraws the prior office action rejections and includes a new rejection here under 35 U.S.C. 103(a) over the previously cited art to Kobayashi, et al. (7,238,454). This rejection was necessitated by the amendment and therefore the action is made Final.

Remarks – the applicant argues that Kobayashi discloses in Kobayashi's claim 1, "said removing step is carried out by exposing only the resist film in said portion of the edge of said substrate ... thereafter by selectively supplying said developer to only said exposed area." Kobayashi therefore discloses removing resist in an exposed area rather than removing resist film when the resist film is developed in the support region of the mask blank that is not exposed to light.

Kobayashi et al. disclose (col. 3, line 56+) - A method of producing a photomask blank, comprising a thin film forming step of forming, on a rectangular (including square) substrate, step of applying a positive resist on the thin film, and a baking step of heat treating the resist applied on the thin film, wherein the resist film in the portion of the edge of the substrate is exposed after the resist application

step and before the baking step so that, in a developing step during a photomask production process, the resist film in the portion of the edge of the substrate exposed as mentioned above is removed simultaneously with formation of a mask pattern.

And in a statement of the state of the prior art Kobayashi et al. in col. 1, line 63+, - In the first existing method mentioned above, the unnecessary resist film formed in the portion of the edge of the substrate and a resist removal area (a naked area of the opaque film) 10 on a principal surface) is removed, as illustrated in FIG. 3. However, a removal end (endmost portion) 11 left at a boundary between a resist film 12 and the resist removal area 10 has a remarkable edge roughness (irregularity or unevenness). In addition, as shown in FIG. 3A which is a sectional view taken along a line X1-X2 in FIG. 3, a remarkable protrusion 13 is formed at the removal end 11. Thus, the quality of resist removal is inferior.

The examiner maintains in the new rejection here that this is a design choice and that after the resist is removed the resulting structure is the same.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention

was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi, et al. (7,238,454).

The claimed invention is directed to a mask blank, a method of making a mask blank, and a method of using said blank, the blank is an original plate for manufacturing a transfer mask, having on a substrate main surface a thin film, on which a transfer pattern is formed when the transfer mask is manufactured, and resist film, which is used when the transfer mask is manufactured, comprising on a peripheral edge of the substrate main surface: an auxiliary pattern forming region which is formed on the transfer mask, when the transfer mask is manufactured by the mask blank; and a supported region of the mask blank, which is a region to be supported by a substrate holding member of an exposure device when a transfer is carried out by using the transfer mask.

In the claimed invention the resist film 30 formed in the unnecessary region of the substrate peripheral edge is removed, which prevents it from coming into contact with the chuck part for grasping the photomask blank during transfer. In addition, the resist film of the supported region already exposed to light is also removed during formation of the transfer pattern in the development processing step in the transfer mask manufacturing step. Accordingly, the deformation of the

reticle which is vacuum-chucked to the substrate holding member of the exposure device, is prevented, because no level difference by the thickness of the thin film is generated, with the substrate in the supported region exposed, whereby the lowering of positional accuracy of the transfer pattern and the lowering of the focus accuracy can be suppressed to a minimum. Moreover, there is the non-exposure region, which is not exposed to light, in the auxiliary pattern forming region 32 except the supported region 31 formed in the peripheral edge of the substrate main surface, and the resist film 30 is not removed and remains even in the development processing step in the transfer mask manufacturing step. Therefore, no pattern defect of the auxiliary pattern is generated.

Kobayashi, et al. teaches claims 1 and 6 (see claims 1 and 3) - Claim 3 states a method of producing a photomask blank as claimed in claim 1 or 2, wherein said photomask blank is covered at least in its peripheral portion by a cover member with a predetermined distance left between a principal surface of said photomask blank and said cover member, said predetermined distance being selected so that said developer is filled exclusively in a gap defined by said predetermined distance for capillary action when said developer is supplied to said gap, said developer being supplied to said gap defining a developer supply area on said principal surface of said photomask blank so that said resist film formed in said portion of the edge of said substrate is removed.

The teachings of Kobayashi et al. differ from those of the applicant in that the applicant teaches that the resist film in the supported region of the mask blank that is not exposed to light is removed when the resist is developed.

However, Kobayashi et al. teach the problem to which the claimed invention is directed, that of residual resist left on the blank which creates problems when the blank is placed in the mask holder, is addressed by the cited art, and it is extremely well known in the art that a negative or positive resist can be used depending on the design choice and therefore, it would have been obvious to one having ordinary skill in the art to take the teachings of Kobayashi, and remove the resist that is not exposed to light in order to make the claimed invention because this would be one of two possible design choices as the resist is being removed in either case.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/S. Rosasco/
Primary Examiner, Art Unit 1795

S.Rosasco

10/15/09